

REMARKS

Claims 1-39 were pending in the application; the status of the claims is as follows:

Claims 19-21 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention, and for insufficient antecedent basis.

Claims 1-3, 7, 8, 13, 17, 22-24, 28-30, and 34-36 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,858,195 to Ramsey ("Ramsey").

Claims 4-6, 9-12, 14-16, 18-21, 25, 31-33, and 37-39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ramsey in view of U.S. Patent No. 5,922,591 to Anderson et al ("Anderson et al").

Claims 40-43 have been added to more distinctly claim the invention. No new matter has been added. Claims 40-43 are considered to be allowable over the prior art of record.

The acknowledgement, in the Office Action, of a claim for foreign priority under 35 U.S.C. § 119(a)-(d), and that the certified copy of the priority document has been received, is noted with appreciation.

Receipt is acknowledged of the two PTO Forms 1449. However, all of the documents have not been initialed by the Examiner. Enclosed are copies of the two PTO-Forms 1449. Acknowledgment of receipt of the application document and the two literature documents is respectfully requested.

The indication, in the Office Action, that the Examiner has no objections to the drawings filed on December 6, 2001, is noted with appreciation.

Claims 1, 13, 17, 22, 28, and 34 have been amended to correct minor grammatical errors. Claims 19-21 have been amended to correct for proper antecedent basis. More specifically, claims 19-21 have been amended to depend from claim 18, which recites a flow controller, instead of claim 17. These changes are not necessitated by the prior art, are unrelated to the patentability of the invention over the prior art, and do not introduce any new matter.

35 U.S.C. § 112 Rejection

The rejection of claims 19-21 under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention, and for insufficient antecedent basis, is respectfully traversed based on the following.

Claims 19-21 have been amended to depend from claim 18, which recites a flow controller, instead of claim 17.

Accordingly, it is respectfully requested that the rejection of claims 19-21 under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention, and for insufficient antecedent basis, be reconsidered and withdrawn.

35 U.S.C. § 102(b) Rejection

The rejection of claims 1-3, 7, 8, 13, 17, 22-24, 28-30, and 34-36 under 35 U.S.C. § 102(b) as being anticipated by Ramsey, is respectfully traversed based on the following.

The Office Action describes Ramsey as teaching that the apparatus is operated to transport and mix sample and reagent fluids in accordance to a timed sequence, citing col. 9, lines 25-63. A review of the cited passage shows, however, that this sequencing is performed by electrokinetically opening and closing access to an intersection 40A. A controlled electrokinetic valve is used as a dispenser to dispense selected volumes of a

single material or as a mixer to mix selected volumes of plural materials in the intersection 40A. Thus, in Ramsey, the sequence in which the fluids are supplied to the intersection is controlled by opening and closing electrokinetic valves.

Claim 1 recites, *inter alia*,

wherein a configuration of said flow pass determines a sequential relationship for each of said plurality of fluids supplied from each of said plurality of supply units to reach said reaction chamber.

Thus, claim 1 employs the configuration of the flow pass to determine the sequential relationship for each fluid to reach the reaction chamber. In contrast, Ramsey does not disclose that a configuration of the flow pass can be used to determine flow sequence. Rather, Ramsey discloses electrokinetic valves, which can be used to determine flow sequence. Thus, claim 1 is considered to be allowable over Ramsey. Claims 2, 3, 7 and 8 depend from and contain all the limitations of claim 1. Thus, claims 2, 3, 7 and 8 are allowable for at least the same reasons that claim 1 is allowable.

Claim 13 recites, *inter alia*,

wherein an arrangement order of said plurality of supply units on said common flow pass determines a sequential order for each of said plurality of fluids supplied from each of said plurality of supply units to reach said reaction chamber.

As discussed above, Ramsey discloses electrokinetic valves, which can be used to determine flow sequence. In contrast, claim 13 requires that an arrangement order of the supply units on the common flow pass determines the sequential order for each of the fluids supplied from the respective supply units to reach the reaction chamber. Thus, claim 13 is considered to be allowable over Ramsey.

Claim 17 recites, *inter alia*,

wherein a configuration of each of said plurality of flow passes determines a sequential order for each of said plurality of fluids supplied from each of said plurality of supply units to reach said reaction chamber.

As discussed above, Ramsey discloses electrokinetic valves, which can be used to determine flow sequence. In contrast, claim 17 requires that a configuration of each of the flow passes determines the sequential order for each of the fluids supplied from the respective supply units to reach the reaction chamber. Thus, claim 17 is considered to be allowable over Ramsey.

Claim 22 recites, *inter alia*,

wherein said plurality of fluids reach said reaction chamber in a sequence based on the respective dimensions of each of said plurality of flow passes.

As discussed above, Ramsey discloses electrokinetic valves, which can be used to determine flow sequence. In contrast, claim 22 requires that the fluids reach the reaction chamber in a sequence based on the respective dimensions of each of the flow passes. Thus, claim 22 is considered to be allowable over Ramsey. Claims 23-24 depend from and contain all the limitations of claim 22. Thus, claims 23-24 are allowable for at least the same reasons that claim 22 is allowable.

Claim 28 recites, *inter alia*,

wherein said plurality of fluids reach said reaction chamber in a sequence based on the respective dimensions of each of said plurality of branch flow passes.

As discussed above, Ramsey discloses electrokinetic valves, which can be used to determine flow sequence. In contrast, claim 28 requires that the fluids reach the reaction chamber in a sequence based on the respective dimensions of each of the flow passes.

Thus, claim 28 is considered to be allowable over Ramsey. Claims 20-30 depend from and contain all the limitations of claim 28. Thus, claims 29-30 are allowable for at least the same reasons that claim 28 is allowable.

Claim 34 recites, *inter alia*,

wherein said first, second and third fluids reach said reaction chamber in a sequence based on the relative dimensions of each of said first, second, and third branch flow passes.

As discussed above, Ramsey discloses electrokinetic valves, which can be used to determine flow sequence. In contrast, claim 34 requires that the first, second and third fluids reach the reaction chamber in a sequence based on the relative dimensions of each of the first, second and third flow passes. Thus, claim 34 is considered to be allowable over Ramsey. Claims 35-36 depend from and contain all the limitations of claim 34. Thus, claims 35-36 are allowable for at least the same reasons that claim 34 is allowable.

Accordingly, it is respectfully requested that the rejection of claims 1-3, 7, 8, 13, 17, 22-24, 28-30, and 34-36 under 35 U.S.C. § 102(b) as being anticipated by Ramsey, be reconsidered and withdrawn.

35 U.S.C. § 103(a) Rejection

The rejection of claims 4-6, 9-12, 14-16, 18-21, 25-27, 31-33, and 37-39 under 35 U.S.C. § 103(a), as being unpatentable over Ramsey in view of Anderson et al, is respectfully traversed based on the following.

Anderson discloses a miniaturized integrated nucleic acid diagnostic device and system. (Abstract). The Office Action cites Anderson as disclosing “the incorporation of a pressure manifold, which provides a suction or vacuum effect, for facilitating fluid transport within a microfluidic apparatus. (Office Action, p. 5). While Anderson does disclose that “internal pump elements ... may be used to transport fluid samples through

the device,” Anderson (like Ramsey) relies on controllable valves to control the dispensing of the fluid. Anderson discloses that a pump can be used to create a positive pressure. Upon opening a controllable valve, the positive pressure forces the fluid sample to move from one chamber to another. (Anderson, col. 3, lines 29-47).

Anderson also discloses that two discrete fluid components can be introduced into a channel, separated by a gas bubble. The sequence of the flow of fluids through the channel is then based on whether a fluid is introduced prior or subsequent to the bubble.

Claims 4-6 and 9-12 depend from and contain all the limitations of claim 1. As discussed above, claim 1 employs the configuration of the flow pass to determine the sequential relationship for each fluid to reach the reaction chamber. Anderson discloses a controllable valve and a bubble, either of which can be used to control flow sequence. However, there is no disclosure in either Anderson or Ramsey that a configuration of the flow pass can be used to determine flow sequence. Thus, claims 4-6 and 9-12 are considered to be allowable over Ramsey and Anderson.

Claims 14-16 depend from and contain all the limitations of claim 13. As discussed above, claim 13 requires that an arrangement order of the supply units on the common flow pass determines the sequential order for each of the fluids supplied from the respective supply units to reach the reaction chamber. Anderson discloses a controllable valve and a bubble, either of which can be used to control flow sequence. However, there is no disclosure in either Anderson or Ramsey that an arrangement order of the supply units on the common flow pass can be used to determine flow sequence. Thus, claims 14-16 are considered to be allowable over Ramsey and Anderson.

Claims 18-21 depend from and contain all the limitations of claim 17. As discussed above, claim 17 requires that a configuration of each of the flow passes determines the sequential order for each of the fluids supplied from the respective supply units to reach the reaction chamber. Anderson discloses a controllable valve and a bubble, either of which can be used to control flow sequence. However, there is no disclosure in

either Anderson or Ramsey that a configuration of the flow passes can be used to determine flow sequence. Thus, claims 18-21 are considered to be allowable over Ramsey and Anderson.

Claims 25-27 depend from and contain all the limitations of claim 22. As discussed above, claim 22 requires that the fluids reach the reaction chamber in a sequence based on the respective dimensions of each of the flow passes. Anderson discloses a controllable valve and a bubble, either of which can be used to control flow sequence. However, there is no disclosure in either Anderson or Ramsey that the fluids reach the reaction chamber in a sequence based on the dimension of each of the flow passes. Thus, claims 25-27 are considered to be allowable over Ramsey and Anderson.

Claims 31-33 depend from and contain all the limitations of claim 28. As discussed above, claim 28 requires that the fluids reach the reaction chamber in a sequence based on the respective dimensions of each of the flow passes. Anderson discloses a controllable valve and a bubble, either of which can be used to control flow sequence. However, there is no disclosure in either Anderson or Ramsey that the fluids reach the reaction chamber in a sequence based on the respective dimensions of each of the flow passes. Thus, claims 31-33 are considered to be allowable over Ramsey and Anderson.

Claims 37-39 depend from and contain all the limitations of claim 34. As discussed above, claim 34 requires that the first, second and third fluids reach the reaction chamber in a sequence based on the relative dimensions of each of the first, second and third flow passes. Anderson discloses a controllable valve and a bubble, either of which can be used to control flow sequence. However, there is no disclosure in either Anderson or Ramsey that the first, second and third fluids reach the reaction chamber in a sequence based on the respective dimensions of each of the flow passes. Thus, claims 37-39 are considered to be allowable over Ramsey and Anderson.

Accordingly, it is respectfully requested that the rejection of claims 4-6, 9-12, 14-16, 18-21, 25-27, 31-33, and 37-39 under 35 U.S.C. § 103(a) as being unpatentable over Ramsey in view of Anderson et al, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment increases the number of independent claims by 4 from 6 to 10 and increases the total number of claims by 4 from 39 to 43, but does not present any multiple dependency claims. Accordingly, a Response Transmittal and Fee Authorization form authorizing the amount of \$416.00 to be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260 is enclosed herewith in duplicate. However, if the Response Transmittal and Fee Authorization form is missing, insufficient, or otherwise inadequate, or if a fee, other than the issue fee, is required during the pendency of this application, please charge such fee to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260.

Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.


If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee,

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and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's
Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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Substitute for form 1449A/PTO				Complete if Known				
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				First Inventor		Yasuhisa FUJII et al.		
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Sheet 1 of 1		Attorney Docket No.		15162/04090				
U.S. PATENT DOCUMENTS								
Examiner Initials	Cite #	DOCUMENT NUMBER	C O D E	PATENTEE	ISSUE DATE (mm/dd/yy)	CLASS	SUB CLASS	Filing Date if Appropriate
BJS.	(2)	5,858,195		Ramsey	01/12/99	204	601	
	(3)	Serial No. 09/689,010		Hata				10/12/2000
FOREIGN PATENT DOCUMENTS								
Examiner Initials		O F F I C E	NUMBER	C O D E	PUBLICATION DATE (mm/dd/yy)	TRANSLATION Yes No		
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS								
Examiner Initials		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published						
	(1)	"ELSIA-F750" International Reagents Corporation (Japan) Product Catalog December, 1995 (6 pgs.)						
Examiner Signature	BJS.				Date Considered	6/20/2004		

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.

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Substitute for form 1449A/PTO

**SUPPLEMENTAL
INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

Sheet 1 of 1

Complete if Known

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U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
	Nikkei Microdevices, July 2000 (pages 87-97)
Examiner Signature	Date Considered 6/20/2004

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.